

WHAT IS CLAIMED IS

1. A non-gyroscopic inertial seeker system for determining the azimuth of a body relative to the true North direction, comprising:

- a) a fluid rotor angular accelerometer positioned on and revolving on the body, said accelerometer providing a periodic output signal, and
- b) means to extract from said periodic output signal the body azimuthal direction relative to the true North direction.

2. The inertial seeker system of claim 1, wherein said accelerometer includes at least one sensing element for sensing a Coriolis force correlated with said revolutions.

3. The inertial seeker system of claim 2, wherein said at least one sensing element includes a piezo-ceramic membrane, and wherein said periodic output signal is a periodic electrical voltage transduced from a deflection of said membrane caused by said Coriolis force.

4. The inertial seeker system of claim 1, wherein said means to extract include synchronization means for providing a synchronization pulse signal.

5. The inertial seeker system of claim 4, wherein said synchronization signal is used in combination with said periodic output signal to calculate coefficients of a Fourier series representing the output of said accelerometer.

6. The inertial seeker system of claim 5, wherein body azimuthal direction relative to the true North direction is calculated from said Fourier coefficients using equation 9.

7. A method for determining the azimuth of a body relative to the true North direction, comprising steps of:

- a) providing a fluid rotor angular accelerometer, said accelerometer including at least one Coriolis force sensing element,
- b) rotating said angular accelerometer relative to the body to provide a periodic output signal correlated with a body direction, and

c) using said periodic output signal to determine the azimuth of said body direction relative to the true North direction.

8. The method of claim 7, wherein said sensing element includes a piezo-ceramic membrane having a deflection in response to said Coriolis force.

9. The method of claim 8, wherein said deflection is periodical in response to said body direction, wherein said periodic output signal is an electrical voltage, and wherein said periodic deflection is transduced into said periodic electrical voltage.

10. The method of claim 9, wherein said step of using said periodic output signal includes using a synchronization pulse signal and an average of said periodic electrical voltage to produce a Fourier series having Fourier coefficients.

11. The method of claim 10, wherein said Fourier coefficients are used to calculate said azimuth of said body direction relative to the true North direction.

12. The method of claim 11, wherein said calculation is done according to equation 9.